What is claimed is:

1. A method of processing that includes conditioning a workpiece surface influencing device, the workpiece surface influencing device being used during at least a portion of at least one electrochemical mechanical process that operates upon a workpiece using a solution, the method comprising:

operating upon the workpiece using the solution in the electrochemical mechanical process, with the workpiece surface influencing device being disposed in proximity to the workpiece for a period of time during the electrochemical mechanical process, the electrochemical mechanical process also resulting in accumulation of particles onto the workpiece surface influencing device; and

conditioning the workpiece surface influencing device before performing another electrochemical mechanical process, the conditioning resulting in one of the number of accumulated particles being reduced and the size of the accumulated particles being reduced.

2. The method according to claim 1 further including the step of performing the another electrochemical mechanical process.

3. The method according to claim 2 wherein the electrochemical mechanical process is a first electrochemical mechanical deposition process and the another electrochemical mechanical process is a second electrochemical mechanical deposition process.

4. The method according to claim 3 wherein the first electrochemical mechanical deposition process operates upon the workpiece and the second electrochemical mechanical deposition process operates upon another workpiece that is different from the workpiece.

5. The method according to claim 3 wherein the first electrochemical mechanical deposition process operates upon the workpiece and the second electrochemical mechanical deposition process operates upon the workpiece.

6. The method according to claim 2 wherein the electrochemical mechanical process is an electrochemical mechanical deposition process and the another electrochemical mechanical process is an electrochemical mechanical etching process.

7. The method according to claim 6 wherein the electrochemical mechanical deposition process operates upon the workpiece and the electrochemical mechanical etching process operates upon the workpiece.

8. The method according to claim 1 wherein the electrochemical mechanical process is an electrochemical mechanical deposition process and the particles that are reduced in the step of conditioning are conductive particles formed and accumulated during the

electrochemical mechanical deposition process and substantially made of a conductive material deposited by the electrochemical mechanical deposition process.

9. The method according to claim 1 wherein the electrochemical mechanical process is an electrochemical mechanical etching process and the particles that are reduced in the step of conditioning are conductive particles formed and accumulated during the electrochemical mechanical etching process and substantially made of a conductive material removed by the electrochemical mechanical etching process.

10. The method according to claim 1 wherein the particles that are reduced in the step of conditioning are non-conductive particles.

11. The method according to claim 1 wherein the step of conditioning includes:

applying a potential difference between an electrode and a conditioning member.

12. The method according to claim 11 wherein the electrochemical mechanical process is an electrochemical mechanical deposition process that uses another potential difference opposite the potential difference, and the particles that are reduced in the step of conditioning are conductive particles accumulated during the electrochemical mechanical deposition process and substantially made of a conductive material deposited by the electrochemical mechanical deposition process.

13. The method according to claim 11 wherein the electrochemical mechanical process is an electrochemical mechanical etching process that uses another potential difference that has the same polarity as the potential difference, and the particles that are reduced in the step of conditioning are conductive particles accumulated during the electrochemical mechanical etching process and substantially made of a conductive material removed by the electrochemical mechanical etching process.

14. The method according to claim 11 wherein the step of conditioning further includes:

establishing frictional mechanical contact between the workpiece surface influencing device and a conditioning member.

15. The method according to claim 14, wherein the step of conditioning rotates the conditioning member against the workpiece surface influencing device.

16. The method according to claim 14, wherein the step of conditioning moves the conditioning member in a lateral direction against the workpiece surface influencing device.

17. The method according to claim 1 wherein the step of conditioning further includes:

establishing frictional mechanical contact between the workpiece surface influencing device and a conditioning member.

18. The method according to claim 17, wherein the step of conditioning rotates the conditioning member against the workpiece surface influencing device.

19. The method according to claim 17, wherein the step of conditioning moves the conditioning member in a lateral direction against the workpiece surface influencing device.

20. The method according to claim 2 wherein the electrochemical mechanical process is a plurality of electrochemical mechanical processes and the another electrochemical mechanical process is another plurality of electrochemical mechanical processes.

21. The method according to claim 20 wherein the plurality of electrochemical mechanical processes includes an electrochemical mechanical deposition process and an electrochemical mechanical etching process.

22. The method according to claim 21 wherein the another plurality of electrochemical mechanical processes includes another electrochemical mechanical deposition process and another electrochemical mechanical etching process.

23. The method according to claim 20 wherein the plurality of electrochemical mechanical processes includes a first electrochemical mechanical deposition process and an electrochemical mechanical etching process and a second electrochemical mechanical deposition process.

24. The method according to claim 23 wherein the another plurality of electrochemical mechanical processes includes another first electrochemical mechanical deposition process and another electrochemical mechanical etching process and another second electrochemical mechanical deposition process.

25. The method according to claim 1 wherein during the step of operating upon the workpiece using the solution in the electrochemical mechanical process, the workpiece surface influencing device contacts the workpiece during the period of time.

26. The method according to claim 1 wherein during the step of operating upon the workpiece using the solution in the electrochemical mechanical process, the workpiece surface influencing device does not contact the workpiece during the period of time.

27. The method according to claim 1 wherein during the step of operating, the solution flows through channels formed in the workpiece surface influencing device, and during the step of conditioning, particles formed within the channels are reduced.

28. The method according to claim 1 wherein during the step of operating, the solution flows through channels formed in the workpiece surface influencing device, and during the step of conditioning, conductive particles associated with the electrochemical mechanical processing that are formed within the channels are reduced.

29. The method according to claim 1 wherein during the step of operating, the solution flows through channels formed in the workpiece surface influencing device, and during the step of conditioning, conductive particles associated with electrochemical mechanical deposition that are formed within the channels are reduced.

30. The method according to claim 1 further including the steps of

removing the workpiece from being disposed in proximity to the workpiece surface influencing device upon completion of the operating step; and

bringing a conditioning member in proximity to the workpiece surface influencing device so that the step of conditioning can then occur.

31. The method according to claim 30 wherein the steps of removing and bringing both use a holder, and the holder holds the workpiece during the step of operating and the holder holds the conditioning member during the step of conditioning.

32. The method according to claim 31 wherein the step of conditioning includes:

applying a potential difference between an electrode and the conditioning member.

33. The method according to claim 32 wherein the electrochemical mechanical process is an electrochemical mechanical deposition process that uses another potential difference opposite the potential difference, and the particles that are reduced in the step of conditioning are conductive particles accumulated during the electrochemical mechanical deposition process and substantially made of a conductive material deposited by the electrochemical mechanical deposition process.

34. The method according to claim 32 wherein the electrochemical mechanical process is an electrochemical mechanical etching process that uses another potential difference that has the same polarity as the potential difference, and the particles that are reduced in the step of conditioning are conductive particles accumulated during the electrochemical mechanical etching process and substantially made of a conductive material removed by the electrochemical mechanical etching process.

35. The method according to claim 32 wherein the step of conditioning further includes:

establishing frictional mechanical contact between the workpiece surface influencing device and the conditioning member.

36. The method according to claim 35 wherein the step of establishing frictional mechanical contact established that contact using brushes that are part of the conditioning member.

37. The method according to claim 35, wherein the step of conditioning rotates the conditioning member against the workpiece surface influencing device.

38. The method according to claim 35, wherein the step of conditioning moves the conditioning member in a lateral direction against the workpiece surface influencing device.

39. The method according to claim 31 wherein the step of conditioning further includes:

establishing frictional mechanical contact between the workpiece surface influencing device and the conditioning member.

40. The method according to claim 39, wherein the step of conditioning rotates the conditioning member against the workpiece surface influencing device.

41. The method according to claim 39, wherein the step of conditioning moves the conditioning member in a lateral direction against the workpiece surface influencing device.

42. A processing apparatus that includes removal of particles on a workpiece surface influencing device used during electrochemical mechanical processing of a workpiece that occurs in the presence of a solution comprising:

an electrochemical mechanical processing system adapted to perform the electrochemical mechanical processing on the workpiece and including:

an electrode;

a holder adapted to hold the workpiece;

a terminal adapted to make electrical contact with the workpiece; and

a workpiece surface influencing device, wherein the electrochemical mechanical processing system is adapted to operate upon the workpiece using the solution, with the workpiece surface influencing device being disposed in proximity to the workpiece for a period of time during the electrochemical mechanical processing, the electrochemical mechanical processing also resulting in accumulation of particles onto the workpiece surface influencing device; and

a conditioning system adapted to condition the workpiece surface influencing device and thereby result in one of the number of accumulated particles being reduced and the size of the accumulated particles being reduced.

43. The apparatus according to claim 42 wherein the conditioning system is attached to the holder and adapted to permit both the conditioning of the workpiece surface

influencing device and the electrochemical mechanical processing on the workpiece to occur simultaneously.

44. The apparatus according to claim 42 wherein the conditioning system includes a conditioning substrate with a plurality of brushes thereon, the plurality of brushes adapted to mechanically contact the workpiece surface influencing device.

45. The apparatus according to claim 44 wherein the conditioning substrate attaches to the holder upon removal of the workpiece from the holder.

46. The apparatus according to claim 42 wherein the conditioning system includes a conditioning conductor layer that will not anodize in the solution, and the conditioning conductor layer is adapted to be electrically connected to a potential difference that will cause the one of the number of accumulated particles to be reduced and the size of the accumulated particles to be reduced.

47. The apparatus according to claim 46 wherein the conditioning conductor layer attaches to the holder upon removal of the workpiece from the holder.

48. The apparatus according to claim 42 wherein the conditioning system and the electrochemical mechanical processing system are located within a lower chamber of a vertically configured chamber system, with the vertically configured chamber system

also including an upper chamber that includes a cleaning system that cleans the workpiece and a moveable guard adapted to separate the lower chamber from upper chamber when the upper chamber is being used.

49. The apparatus according to claim 48 wherein the conditioning system includes a plurality of brushes attached to a conditioning substrate and a brush movement assembly, the brush movement assembly configured to move the plurality of brushes over the workpiece surface influencing device to condition the workpiece surface influencing device.

50. The apparatus according to claim 49 wherein the conditioning system is adapted to operate on the workpiece surface influencing device at the same time the cleaning system is adapted to operate upon the workpiece.

51. The apparatus according to claim 49 wherein the plurality of brushes and the conditioning substrate have a conductive coating that will not anodize in the solution disposed within the lower chamber, the conditioning substrate adapted to be electrically connected to a potential difference that will cause the one of the number of accumulated particles to be reduced and the size of the accumulated particles to be reduced.

52. The apparatus according to claim 51 wherein the conditioning system is adapted to operate on the workpiece surface influencing device at the same time the cleaning system is adapted to operate upon the workpiece.

53. The apparatus according to claim 51 wherein the conductive coating is comprised of an inert conductor.

54. The apparatus according to claim 48 wherein the conditioning system includes a conditioning conductor layer that will not anodize in the solution disposed within the lower chamber, the conditioning conductor layer adapted to be electrically connected to a potential difference that will cause the one of the number of accumulated particles to be reduced and the size of the accumulated particles to be reduced.

55. The apparatus according to claim 54 wherein the conditioning conductor layer is comprised of an inert conductor.

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59. The apparatus according to claim 48 wherein the conditioning system is adapted to operate on the workpiece surface influencing device at the same time the cleaning system is adapted to operate upon the workpiece.

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60. The apparatus according to claim 42 wherein:

the electrochemical mechanical processing system is located within a lower chamber of a vertically configured chamber system, with the vertically configured chamber system also including an upper chamber and a moveable guard adapted to separate the lower chamber from upper chamber when the upper chamber is being used.

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61. The apparatus according to claim 61 further including a cleaning system that cleans the workpiece disposed in the upper chamber.

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62. The apparatus according to claim 60 wherein:

the holder is further adapted to hold the conditioning system when the holder is no longer holding the workpiece.

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63. The apparatus according to claim 62 wherein the conditioning system includes a plurality of brushes attached to a conditioning substrate, the plurality of brushes configured for relative movement with the workpiece surface influencing device to condition the workpiece surface influencing device.

61 60

64. The apparatus according to claim 63 wherein the plurality of brushes and the conditioning substrate have a conductive coating that will not anodize in the solution disposed within the lower chamber, the conditioning substrate adapted to be electrically connected to a potential difference that will cause the one of the number of accumulated particles to be reduced and the size of the accumulated particles to be reduced.

65. The apparatus according to claim 64 wherein the conductive coating is comprised of an inert conductor.

66. The apparatus according to claim 62 wherein the conditioning system includes a conditioning conductor layer that will not anodize in the solution disposed within the lower chamber, the conditioning conductor layer adapted to be electrically connected to a potential difference that will cause the one of the number of accumulated particles to be reduced and the size of the accumulated particles to be reduced.

67. The apparatus according to claim 66 wherein the conditioning conductor layer is comprised of an inert conductor.

68. A system for processing a workpiece and removing particles on a workpiece surface influencing device, the workpiece surface influencing device being used in conjunction with a plating solution to process the workpiece, comprising:

a holder adapted to receive the workpiece and to move the workpiece proximate to the workpiece surface influencing device;

an apparatus adapted to deposit, via the plating solution, conductive material onto the workpiece using a first potential difference that is applied between an electrode and the workpiece with the workpiece surface influencing device in close proximity to the workpiece; and

a conditioning member having a conditioning conductor layer adapted to assist in removing at least a first portion of the particles that accumulate on the workpiece surface influencing device during the depositing of the conductive material using a second potential difference that is applied between the electrode and the conditioning conductor layer of the conditioning member, the second potential difference being of an opposite polarity to the first potential difference.

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69. The system according to claim 68, wherein the conditioning member further comprises a mechanical contact member to mechanically remove at least a second portion of the particles that accumulate on the workpiece surface influencing device.

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70. The system according to claim 68 wherein the holder is further adapted to hold the conditioning member when the holder is no longer holding the workpiece.

68
71. A method of processing a workpiece and removing particles on a workpiece surface influencing device, the workpiece surface influencing device being used in conjunction with a plating solution to process the workpiece, comprising:

applying a first potential difference between an electrode and the workpiece;

depositing, via the plating solution, conductive material onto the workpiece in the presence of the first potential difference with a top surface of the workpiece surface influencing device in close proximity to the workpiece; and

moving a conditioning member having at least one mechanical contact member against the top surface of the workpiece surface influencing device so that at least a portion of the particles that accumulate on the workpiece surface influencing device during the depositing of the conductive material are mechanically removed from the workpiece surface influencing device.

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72. The method according to claim 71, wherein the at least one mechanical contact member comprises a plurality of conductive brushes and during the step of, further including the step of applying a second potential difference to the plurality of conductive brushes that will assist in removing the particles from the workpiece surface influencing device.

73. The method according to claim 72, wherein the step of moving causes relative rotational motion between the at least one mechanical contact member and the workpiece surface influencing device.

74. The method according to claim 73, wherein the step of moving causes relative lateral motion between the at least one mechanical contact member and the workpiece surface influencing device.

75. The method according to claim 71, wherein the step of moving causes relative motion between the at least one mechanical contact member comprising a plurality of brushes and the workpiece surface influencing device.

76. The method according to claim 71, wherein the workpiece surface influencing device includes a plurality of channels through which the plating solution passes, and during the step of moving the plating solution continues to pass through the plurality of channels, and, during the step of moving applying a second potential difference between the electrode and the at least one mechanical contact member of the conditioning member, the second potential difference being of an opposite polarity to the first potential difference that will assist in removing the conductive particles from the workpiece surface influencing device.

77. The method according to claim 71 further including the steps of

removing the workpiece from being disposed in proximity to the workpiece surface influencing device upon completion of the operating step; and

bringing a conditioning member in proximity to the workpiece surface influencing device so that the step of conditioning can then occur.

78. The method according to claim 77 wherein the steps of removing and bringing both use a holder, and the holder holds the workpiece during the step of depositing and the holder holds the conditioning member during the step of moving.

79. A system for processing a workpiece and removing particles on a workpiece surface influencing device, the workpiece surface influencing device being used in conjunction with a plating solution to process the workpiece, comprising:

an apparatus adapted to deposit, via the plating solution and with the workpiece surface influencing device in close proximity to the workpiece, conductive material onto the workpiece in the presence of a first potential difference that is applied between an electrode and the workpiece;

a holder adapted to receive the workpiece, to move the workpiece in close proximity to the workpiece surface influencing device so that the depositing of the conductive material by the apparatus can take place, and to remove the workpiece from being in close proximity to the workpiece surface influencing device upon completion of the depositing by the apparatus; and

a conditioning member, the conditioning member having at least one mechanical contact member and adapted to move against a top surface of the workpiece surface influencing device so that at least a portion of the particles that accumulate on the workpiece surface influencing device during the depositing of the conductive material are mechanically removed from the workpiece surface influencing device.

80. The system according to claim 79, wherein the apparatus is further adapted to remove at least a second portion of the particles that accumulate on the workpiece surface influencing device during the depositing of the conductive material using a second potential difference that is applied between the electrode and the at least one mechanical

contact member of the conditioning member, the second potential difference being of an opposite polarity to the first potential difference, and the at least one mechanical contact layer being comprised of an inert conductor so that the at least one mechanical contact layer conductor will not anodize in the plating solution.

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81. The apparatus according to claim 79 wherein:

the holder is further adapted to hold the conditioning member when the holder is no longer holding the workpiece.

79
82. A method of processing including reducing accumulation of particles on a workpiece surface influencing device, the workpiece surface influencing device being used in conjunction with a plating solution to operate upon a first and second workpiece, comprising:

depositing, with the workpiece surface influencing device in close proximity to the first workpiece, first conductive material onto the first workpiece using the plating solution, and during depositing causing relative rotational motion in a first rotational direction between the workpiece surface influencing device and the first workpiece;

replacing the first workpiece with the second workpiece;

depositing, with the workpiece surface influencing device in close proximity to the second workpiece, second conductive material onto the second workpiece, and during depositing causing relative rotational motion in a second rotational direction opposite the

first rotational direction between the workpiece surface influencing device and the second workpiece so that at least a portion of the particles that accumulate on the workpiece surface influencing device during the depositing of the first conductive material are removed from the workpiece surface influencing device.

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83. The method according to claim 82 wherein the steps of causing relative rotation rotates one of the workpiece surface influencing device and the first or second workpiece.

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84. The method according to claim 82 wherein the steps of causing relative rotation rotates both the workpiece surface influencing device and the first or second workpiece.

82
85. A system for processing a workpiece and removing particles on a workpiece surface influencing device, the workpiece surface influencing device being used in conjunction with a plating solution to process the workpiece, comprising:

a deposition apparatus positioned in a lower chamber for depositing conductive material from the plating solution onto the workpiece with the workpiece surface influencing device in close proximity to the workpiece; and

a conditioning member adapted to be positioned in the lower chamber and to remove at least a portion of the particles that accumulate on the workpiece surface

influencing device during the depositing of the conductive material by the deposition apparatus; and

a holder adapted to position the workpiece in the lower chamber while the deposition apparatus is being used.

86. The system according to claim 85, further comprising a cleaning system disposed in the upper chamber and wherein the upper and lower chamber are capable of being separated using a moveable guard.

87. The system according to claim 85 wherein the conditioning member is adapted for relative movement with the workpiece surface influencing device so that the conductive particles are mechanically removed from the workpiece surface influencing device.

88. The system according to claim 85 wherein the conditioning member is adapted to apply a potential difference between the conditioning member and the workpiece surface influencing device to assist in removing the particles from the workpiece surface influencing device.

89. The system according to claim 85, wherein the holder is adapted to rotate about a first axis.

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90. The system according to claim 89, wherein the holder is further adapted to move side to side within the lower chamber.

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91. The system according to claim 85, wherein the deposition apparatus comprises an electro chemical mechanical deposition apparatus.

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92. The system according to claim 85, wherein the conditioning member comprises a brush member.

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93. The system according to claim 92, further comprising:

a brush assembly that moves the brush member connected thereto in a lateral direction and wherein the brush assembly is disposed in the lower chamber.

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94. The apparatus according to claim 93 wherein the conditioning member is adapted to operate on the workpiece surface influencing device at the same time another system is operating upon the workpiece in the upper chamber.

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95. The system according to claim 94, wherein the brush assembly comprises:

a drive apparatus that moves the brush member in the lateral direction.